P A T E N T

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
)
Ovadia, et al.)
)
Application No.:)
)
Filed: Herewith)
)

For: METHOD AND APPARATUS FOR FILTERING INTERFERENCE AND NONLINEAR DISTORTIONS

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail, postage prepaid, in an envelope addressed to Commissioner for Patents, Washington, D C 20231 on August 15, 20001.

By Michele Hollis
Michele Hollis

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Dear Sir:

Prior to the calculation of the filing fee and examination of the above-referenced U.S. patent application, please amend the application as follows:

IN THE CLAIMS:

Claim Summary

Claims 1-15 are cancelled and claims 16, 19, and 20 are amended. New claim 21 is added. For the Examiner's convenience, and in compliance with 37 C.F.R. § 1.121, a clean version of the amended claims is set forth below and a marked up version of the amended claims is set forth on a separate sheet submitted herewith.

Amended Claims

Cancel claims 1-15 without prejudice.

16. (Amended) A method for filtering nonlinear distortion in a signal communicated from a transmitter to a receiver via a communication path, comprising the steps of:

pre-distorting said signal at the transmitter to accentuate the signal magnitude at a fixed frequency where said nonlinear distortion resides;

communicating the pre-distorted signal to said receiver; and

filtering the pre-distorted signal at said receiver to attenuate the signal magnitude at said fixed frequency, wherein said pre-distorting of said signal at said transmitter compensates for distortion effects caused by said filtering at said receiver.

19. (Amended) Apparatus for filtering nonlinear distortion in a signal communicated from a transmitter to a receiver via a communication path, comprising:

a first filter at the transmitter to provide a pre-distorted signal having an accentuated magnitude at a fixed frequency where said nonlinear distortion resides; and

a second filter at the receiver adapted to filter the pre-distorted signal to attenuate the signal magnitude at said fixed frequency, wherein said first filter

compensates for distortion effects caused by said second filter.

20. (Amended) Apparatus for filtering nonlinear distortion in a signal communicated from a transmitter to a receiver via a communication path, comprising:

a first filter at the transmitter to provide a pre-distorted signal having an accentuated magnitude at a fixed frequency where said nonlinear distortion resides; and

a second filter at the receiver adapted to filter the pre-distorted signal to attenuate the signal magnitude at said fixed frequency, wherein:

said second filter comprises a notch filter having a Z-transform transfer function described by:

$$H(z) = \frac{1 + 2\mathrm{Re}(\alpha)z^{-1} + z^{-2}}{1 - 2\mathrm{Re}(\alpha)R \cdot z^{-1} + R^2 \cdot z^{-2}}$$

where $\alpha = \exp(2j\pi\phi)$, ϕ is the normalized center frequency of the filter, and R is a constant; and

said first filter implements the inverse transfer function $H(z)^{-1}$.

Insert the following new claim 21:

--21. (New) Apparatus for filtering nonlinear distortion in a signal communicated from a transmitter to a receiver via a communication path, comprising:

a first notch filter at the transmitter having a first transfer function to provide a pre-distorted signal having an accentuated magnitude at a fixed frequency where said nonlinear distortion resides; and

a second notch filter at the receiver having a second transfer function adapted to filter the pre-distorted signal to attenuate the signal magnitude at said fixed frequency;

wherein said first transfer function is the inverse of said second transfer function.--.

REMARKS

Claims 1-15 are cancelled without prejudice. Claims 16, 19, and 20 are amended and new claim 21 is added.

Entry of the Amendment prior to the calculation of the filing fee is respectfully requested.

Respectfully submitted,

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Version of Amended Claims with Markings to Show Changes Made

Amended Claims

16. (Amended) A method for filtering nonlinear distortion in a signal communicated from a transmitter to a receiver via a communication path, comprising the steps of:

pre-distorting said signal at the transmitter to accentuate the signal magnitude at a fixed frequency where said nonlinear distortion resides;

communicating the pre-distorted signal to said receiver; and

filtering the pre-distorted signal at said receiver to attenuate the signal magnitude at said fixed frequency, wherein said pre-distorting of said signal at said transmitter compensates for distortion effects caused by said filtering at said receiver.

19. (Amended) Apparatus for filtering nonlinear distortion in a signal communicated from a transmitter to a receiver via a communication path, comprising:

a first filter at the transmitter to provide a pre-distorted signal having an accentuated magnitude at a

fixed frequency where said nonlinear distortion resides; and

a second filter at the receiver adapted to filter the pre-distorted signal to attenuate the signal magnitude at said fixed frequency, wherein said first filter compensates for distortion effects caused by said second filter.

20. (Amended) [Apparatus in accordance with claim 19] Apparatus for filtering nonlinear distortion in a signal communicated from a transmitter to a receiver via a communication path, comprising:

a first filter at the transmitter to provide a pre-distorted signal having an accentuated magnitude at a fixed frequency where said nonlinear distortion resides; and

a second filter at the receiver adapted to filter the pre-distorted signal to attenuate the signal magnitude at said fixed frequency, wherein:

said second filter comprises a notch filter having a Z-transform transfer function described by:

$$H(z)=\frac{1+2\mathrm{Re}(\alpha)z^{-1}+z^{-2}}{1-2\mathrm{Re}(\alpha)R\cdot z^{-1}+R^{2}\cdot z^{-2}}$$

where α = exp(2j$\pi\phi$), ϕ is the normalized center frequency of the filter, and R is a constant; and

said first filter implements the inverse transfer function $H(z)^{-1}$.